Manitoba

91-01265/

Agriculture

Date: July, 1990
Agdex No.: 450-24

Poultry Facts

Managing a Small Poultry Flock

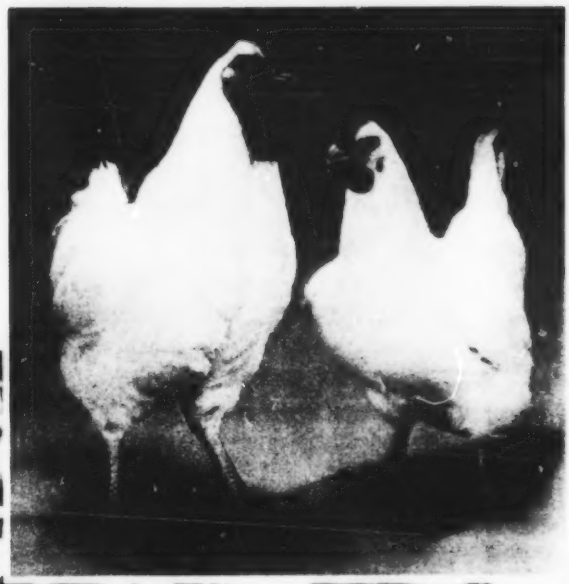
What to Raise

Today's specialized chicken industry has developed into two distinct areas — broiler production and egg production. To produce either eggs or meat efficiently, producers should use a recognized egg strain or broiler strain. For those who want both, two separate flocks may prove too cumbersome. Instead, the less-efficient dual-purpose crosses may prove more desirable.

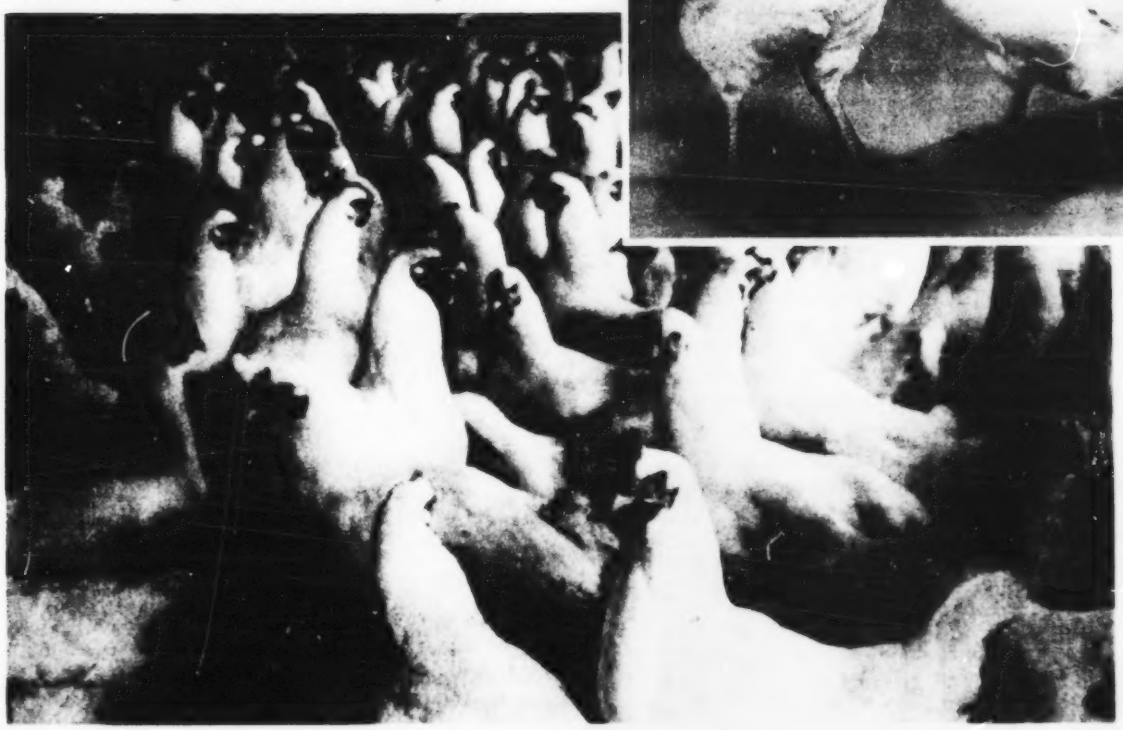
Dual-purpose birds such as Barred Rock, New Hampshire, Light Sussex, or crosses of these and other breeds, are available to springtime buyers.

Early broiler crosses used to take 15 to 16 weeks to reach a market weight of 1.4 to 1.8 kg (3 to 4 lb.), but today's strains are capable of 1.8 to 2 kg (4 to 4.5 lb.) in seven weeks. They require 0.9 kg (2 lb.) of feed for each 0.45 kg (1 lb.) of gain. For small flock purposes, this type of bird can be fed a lower-energy diet and raised to a weight of 3.6 to 4.5 kg (8 to 10 lb.) in 12 to 14 weeks, to produce a good sized roaster bird.

On the egg production side, great strides in efficiency have also been made. Production used to be seasonal, with only small amounts in the fall. Eggs were stored or preserved for over-winter use. In spring, egg production began again — if birds were housed sufficiently well to survive the winter. The use of electric lights and improved housing conditions has resulted in light control and year-round production. These advantages — plus breeding selection — have seen 12-month egg production advance from a few dozen per bird, to 20 to 22 dozen per bird.



Good flock management will result in healthy birds.



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Raising the Flock

Regardless of the type of bird chosen, a great deal of care is required to achieve a top-notch egg or meat producer.

- **Temperature**

A bird is born with a body temperature of 39°C (103.5°F), but the temperature rises to 40.6°C to 41.7°C (105°F to 107°F) at maturity. Heated premises are definitely needed for brooding.

For small flocks, the most common source of heat is a heat lamp. These lamps accommodate a 250-watt red or clear bulb. When suspended 45 to 60 cm (18 to 24 in.) off the floor, they provide enough heat to brood up to 150 to 300 chicks for a single-light, or 300 to 500 for a four-light model. Some units have thermostatic controls, while others have to be raised or lowered to provide the required temperature at bird level.

The behaviour and sounds of the chicks will indicate their comfort level. Comfortable birds will form a circle under the lamp, and make soft "cheeping" noises; cold birds will huddle and pile, and make sharp noises. If birds are too hot, they will crowd as far from the lamps as possible.

Temperature at the edge of the heat source, two inches above the litter, should be 35°C (95°F) for the first week. Then, it should be reduced by 2.8°C (5°F) per week, until the birds are six weeks old. Temperatures in the 18 to 21°C (65 to 70°F) range are desirable from then on.

- **Housing**

A wide variety of housing can be used, provided it supplies the necessities. Proper housing should have:

- a desirable floor surface
- insulated walls and ceilings (preferable)
- a ventilation system
- an electrical supply
- no drafts.

Well before the chicks arrive, the chicken house should be thoroughly cleaned and disinfected. Twenty-four hours before chicks arrive, all equipment should be in place and the building temperature stabilized at the required level.

- **Litter**

Five to 7.5 cm (2 to 3 in.) of clean, dry material — such as shavings, wheat straw or a combination — provides an excellent litter material for the floor. As wet or caked spots develop, they should be removed and fresh litter added and stirred in. Litter should be added every few days to maintain a clean, spongy mass for birds to walk on. Periodic clean-outs will probably be required to maintain proper conditions.

- **Floor Space**

Until three weeks of age, 0.05 m^2 (0.5 sq. ft.) of floor space should be allowed for each bird. Then, until eight weeks, 0.09 m^2 (1 sq. ft.) should be allowed. After that, allow 0.19 m^2 (2 sq. ft.) for each bird.

- **Feed and Feeder Space**

If birds can't easily find their feed, they will begin to eat the litter. A variety of steps can be taken to avoid this significant problem:

- Lids from the chick boxes can be turned up, lined with newspaper and used as feed trays. A scoop of feed is placed in the middle of each tray.
- Egg flats can be used for the same purpose. Five to six flats per 100 birds should be sufficient.
- Feed boxes, much like chick-box lids, can be purchased from some hatcheries.
- A crinkle craft paper — available at some hatcheries — can be spread over the litter, and feed piles placed directly on this paper.

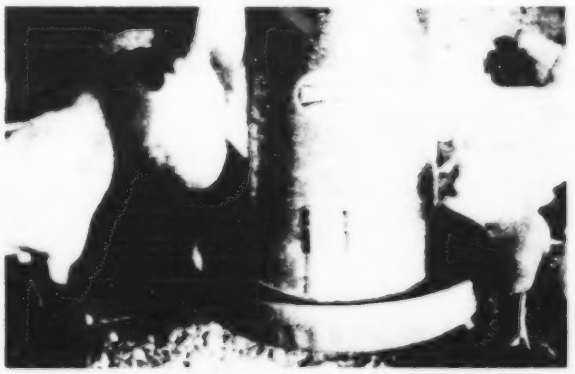
All of these methods should be discontinued after chicks are five to six days old. Regular trough or tube feeders, which should be in place from day one, can now be relied upon.

Trough feeders should supply 5 to 7.5 cm (2 to 3 in.) of space per bird for the first six weeks, then 10 to 15 cm (4 to 6 in.) thereafter. Tube feeders should have a capacity of 13.6 to 22.7 kg (30 to 50 lb.). Until six weeks, one feeder should provide for every 300 chicks. After six weeks, four to six feeders per hundred birds are required.

For the first week to 10 days, trough feeders should rest on the floor to provide easy access for the chicks. There will be a tendency for litter to accumulate in the trough portion; it should be removed several times a day to ensure birds have access to the feed. As the chicks grow, the troughs should be raised with blocks to keep them at the right height and prevent waste.

Hanging tube feeders should be adjusted as the chicks grow, so the top of the feeder lip is kept level with the top of the birds' backs.

Feed can be provided on a continuous basis, but care must be taken to prevent caking in the pans. Birds should periodically be allowed to eat all the feed, so caking doesn't occur.



A hanging tube feeder that is properly maintained.

Feeding Programs

	Broilers	Roasters	Layers
Desired Weight	1.8 kg (4 lb.) in 7 weeks-	4-4.5 kg (9-10 lb. in 12-14 weeks	N/A
Recommended Feeding	Commercially-prepared broiler starter, grower and finisher recommended for desired rapid growth.	• **0-6 weeks:** Regular 18-21% chick starter, with coccidiostat (2.72 kg or 6 lb. per bird). • **6-11 weeks:** 15-18% grower with coccidiostat **OR** 35% medicated supplement (0.79 kg or 1.7 lb. per bird) and wheat (4.8 kg or 10.7 lb. per bird). • **11 weeks to market:** Plain broiler finisher **OR** 35% non-medicated supplement (0.18 kg or 0.4 lb. per bird) and wheat (1.1 kg or 2.5 lb. per bird).	• **0-6 weeks:** 18-21% chick starter with coccidiostat. • **6-14 weeks:** 15-16% grower with coccidiostat **OR** supplement with coccidiostat, and grain. • **14-18 weeks:** 15-16% plain grower **OR** plain supplement and grain. • **18+ weeks:** 16-18% layer ration **OR** layer supplement and grain.

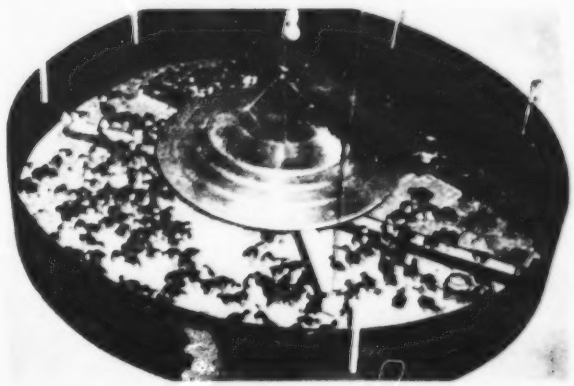
Chicks will double their weight four to five times in the first six weeks of life, and this tremendous growth demands proper nutrition. A commercially-prepared chick starter — or "crumble" — is the best way to provide a complete nutrition package at all times. Each egg-producing chick will consume approximately 1 kg (2 lb.) and each meat-producing chick will consume 2.7 kg (6 lb.) during this time. The starter should contain a coccidiostat.

The single most common cause of problems in small flocks is failure to provide a starter for the first six weeks. The second most common problem is failure to use a nutrient supplement when the chicks go on to a grain ration.

- **Water Space**

Birds should never be without water. To start, three 2.5 L (0.5 gal.) founts per 100 birds should be used. A 30 cm (12 in.) 2 x 8 or 2 x 10 board makes a good stand, and helps prevent litter build-up in the fount lip. After two weeks, it's better to use larger (9 or 13.6 L (2 or 3 gal.) founts or automatic troughs or cups. Water stands, made of 2 x 4's and one-half inch welded wire, will confine spills to a small area. They can also be moved and cleaned out easily, to maintain dry conditions.

Once chicks reach one week of age, the lip of the waterers should be level with the tops of their backs.



Brooder guard is important.

- **Brooder Guard**

A brooder guard will keep chicks close to feed, water and the heat source, as well as prevent piling in corners. Most hatcheries can supply a roll of 18 in. corrigated cardboard to make a guard. The cardboard should be placed around the brooder or brooder lamps, in a minimum 1.5 to 1.8 m (5 to 6 ft.) circle.

At or shortly after one week, the birds will begin to fly over the guard. At this point, it should be removed and building corners rounded to a height of 0.9 m (3 ft.) with cardboard to prevent piling. The brooder guard should be burned, and not re-used.

- **Light**

For the first 48 hours, continuous light should be provided at one watt per 0.1 m^2 (1 sq. ft.). A 100-watt bulb will be required to 10 m^2 (100 sq. ft.). It should be 2.4 m (8 ft.) above floor level.

After this start-up period, light intensity can be reduced to 0.25 watts per 0.1 m^2 (1 sq. ft.). A 25-watt bulb will be required for 10 m^2 (100 sq. ft.).

Egg-producing birds require special light attention if egg production is to be maximized. From two days until sexual maturity (18 to 20 weeks), the light should be restricted to eight hours a day, and housing should be light tight. Light patterns that vary from this will result in less production and lower egg weights.

For meat-producing birds, the light can be left on continuously. If it is turned out at night, birds should be closely monitored the first few nights, because they will have a tendency to pile up.

- **Debeaking**

Chickens have a tendency to peck one another to the point of death, and the only practical method of control is to have them debeaked. It's not a pleasant task, but the alternative of seeing birds kill each other is even more unpleasant. There are several options for debeaking:

- Birds can be debeaked at one day old by the hatchery. However, not all hatcheries are equipped to provide this service, and grow-back is more likely when debeaking is done at this early age.
- Debeaking can be done with an electric debeaker, at six to eight days of age. These machines can sometimes be rented from the hatchery.
- Dog nail clippers can also be used, again at six to eight days old. A red-hot soldering iron must be used — for not more than two to three seconds — to cauterize the wound.

Newly debeaked chicken at ten days old, and debeaked bird at maturity.

Whatever the method, two-thirds of the upper beak, and just slightly less of the lower beak, should be removed.

- **Vaccination**

Buyers should request chicks vaccinated against Marek's Disease. An inexpensive injection done by the hatchery will prevent Marek's, one of poultry's most devastating diseases.

Producers themselves must administer Newcastle/bronchitis combination vaccination. The vaccine is put in drinking water when chicks are six to ten days old, and again at 16 weeks for laying stock. This vaccine can be given to all chicks, but is especially important for potential laying stock. Available from local hatcheries, it must be stored and administered according to the accompanying directions.

- **Disease Control**

For the first 14 weeks, chick starter and grower should contain a coccidiostat to help prevent coccidiosis. Dry litter will also be a benefit — against coccidiosis and most other diseases. Balanced nutrition and good ventilation are also important management practices to help resist disease invasion.

- **Ventilation**

Styles and sizes of poultry houses for small flocks vary so greatly that it is impossible to prescribe a given system that will accommodate all. However, all housing should provide a continuous supply of clean fresh air — to bring in oxygen, and remove moisture and gases (such as ammonia) produced in the litter. Adequate space and clean, dry litter are extremely important in maintaining good air quality. In addition, screened air inlets should be well distributed around the building. Welded wire that is 0.6 by 0.6 cm (0.25 by 0.25 in.) or 1.25 by 1.25 cm (0.5 by 0.5 in.) makes an excellent screen.

Fan ventilation with thermostatic controls is the best type of ventilation system. It should be capable of expelling 0.03 m^3 (1 cubic ft.) of air for each 0.45 kg (1 lb.) of body weight. (Total weight of the flock can be calculated by multiplying the average weight per bird by the number of birds.) If two fans are required, a large and small one will provide maximum flexibility.

A fan ventilation system will require a 0.6 cm (0.25 in.) fresh air intake for each 0.03 m^3 (1 cubic ft) of space. Intakes can be limited in colder weather.

A simpler ventilation system using only roof vents and window intakes can be used instead of a fan system, but it requires constant adjustment with weather changes.

For Further Information

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On-Farm Processing

Processing poultry is much easier with the right equipment, as well as adequate time and assistance.

- **Equipment Needed**
  - killing knife
  - rope, with a small block of wood at one end
  - candy thermometer
  - large bucket to scald birds in (a new or clean 38 to 50 L/15 to 20 gal. garbage pail)
  - several killing cones
  - table to eviscerate on
  - sufficient water tanks or containers to cool and chill the processed birds
  - deboning shears
  - knives for eviscerating
  - plastic garbage bags and containers
  - freezer bags and ties
  - plenty of clean water
  - supply of ice, if possible.

- **Killing Procedure**

Birds should be hung by the feet, using the rope and a block (see picture). The cone is positioned so that the bird's head is through the bottom. The bird's head is grasped in one hand with its comb in the palm. The thumb and forefinger are used to pinch up the underside of the neck. The other hand inserts the sharp killing knife (small thin blade) in a diagonal motion, just above the pinched area. The blade should then be turned to face the neck and a cut made partially around the neck to sever the jugular vein. The knife is withdrawn, making an exit hole sufficient to drain the blood.

A block of wood attached to the end of a rope will make killing easier.

If birds are placed in the cone properly, and their feet are held by the rope, there should be a minimum of blood spatter. Birds should be allowed to bleed for two to three minutes.

- **Plucking**

Feather removal can be done by either the dry pick or the scald methods. With the dry pick method, small bunches of feathers are grasped between thumb and forefinger, and pulled from rear to head direction. Wing and tail feathers are pulled out in a straight-out manner.

For the scald — or wet pick — method, a large pot of water is required. The water is maintained at 49 to 52°C (125 to 135°F), since higher water temperatures lead to skin discoloration and lower temperatures make the job more difficult. A hot scald of 60°C (140°F) is sometimes used, but it causes unappealing skin discoloration. Birds are dipped in water, swished around for 30 to 45 seconds, removed and plucked as for dry method.

If evisceration is not going to be done right away, birds should be placed in a tank of ice water. If ice is maintained, birds can be kept in the tank overnight and eviscerated the next day.

- **Evisceration**

Removal of internal organs should be undertaken in a clean area that is free of flies, and equipped with ample water for washing both hands and carcasses. Large garbage containers should be available for heads, feet and organs.

The first step involves removing the feet and legs at the first joint, and the head at its base. Next, the neck skin can be split along the back, pulled down from the neck, and cleaned of the crop and windpipe. The neck can be severed at the body and saved for giblet packet.

Several types of cuts can be made to remove the internal organs. The neatest of these is the bar cut, which involves a horizontal cut below the point of the keel, followed by a round cut to remove the vent. This leaves a bar of skin into which the legs can be tucked to create a neat package.

The hand is inserted into the body cavity, and with a circular motion, the internal organs can be loosened and pulled from the cavity. Special care should be taken to remove the lungs, which are against the backside of the rib wall, and the kidneys, which adhere to the back of the pelvic area. (Lung and kidney scrapers are available from some poultry equipment firms.) The oil gland at the base of the tail should be cut out.

Heart, liver and gizzard can be reserved for the giblet package, if desired. The gizzard must be split and the contents removed, along with the first thick leather-like layer on the inside.

- **Packaging and Freezing**

Following evisceration, carcasses should be washed immediately under cold, running water. It is then important to reduce body temperature quickly, in order to prevent bacterial growth. If carcasses are freshly killed, they should be chilled in ice water — even overnight — if ice is maintained. However, if birds were killed the previous day and already chilled overnight in ice water, they do not have to be chilled again.

Carcasses should be drained for half an hour, then placed in poultry bags. Air should be removed using a vacuum, and bags closed with a twist tie. Packages should be frozen to -17.8°C (0°F) within 24 hours.

Anyone processing poultry should take extra care to keep all aspects of the operation clean. Otherwise, bacterial contamination will cause spoilage. Care should also be taken not to kill and pluck more than can be eviscerated or chilled in one day.